

CLAIMS

We Claim:

- 1 1. A method comprising:
  - 2 verifying if a brand string feature is supported on a processor;
  - 3 retrieving a brand string;
  - 4 interpreting the brand string which includes information pertaining to a maximum
  - 5 operating frequency of the processor; and
  - 6 outputting the maximum operating frequency.
- 1 2. The method of claim 1, wherein interpreting the brand string includes scanning the
- 2 brand string in reverse order for a quantity.
- 1 3. The method of claim 1, wherein verifying a brand string feature is supported on
- 2 a processor is accomplished by verifying if a value loaded in a register by a processor
- 3 identification instruction is greater than or equal to a selected value.
- 1 4. The method of claim 1, wherein the register is the EAX register, the processor
- 2 identification instruction is the CPUID instruction, and the selected value is 80000000h.
- 1 5. A method comprising:
  - 2 loading a register with a first specified value;
  - 3 executing a processing instruction;
  - 4 verifying that the returned value in the register logically anded with a second specified
  - 5 value does not equal zero;
  - 6 verifying that a value the processing instruction returns is greater than or equal to a
  - 7 third specified value;
  - 8 scanning the string in reverse order for at least one specified substring;
  - 9 parsing the next digits as a decimal number;
  - 10 determining a multiplier value according to the specified substring;
  - 11 multiplying the decimal number by the multiplier value to output a maximum
  - 12 operating frequency.

1       6.     The method of claim 5, wherein the register is one of a plurality of general purpose  
2     registers.

1       7.     The method of claim 5, wherein the first specified value is 0x80000000.

1       8.     The method of claim 5, wherein the specified substring is at least one of “zHM”,  
2     “zHG”, and “zHT”.

1       9.     A machine-readable medium that provides instructions, which when executed by a  
2     machine, causes the machine to perform operations comprising:

3             verifying if a brand string feature is supported on a processor;  
4             retrieving a brand string;  
5             retrieving a maximum operating frequency of the processor from the brand  
6     string; and  
7             outputting the maximum operating frequency.

1       10.    The machine-readable medium of claim 9, wherein retrieving the maximum  
2     operating frequency of the processor from the brand string includes scanning the brand  
3     string in reverse order for the maximum operating frequency.

1       11.    The machine-readable medium of claim 9, wherein verifying if a brand string  
2     feature is supported on a processor is accomplished by verifying a value loaded in a  
3     register by a processor identification instruction is greater than or equal to a selected value.

1       12.    A machine-readable medium that provides instructions, which when executed by a  
2     machine, causes the machine to perform operations comprising:

3             loading a register with a first specified value;  
4             executing a processing instruction;  
5             verifying that the returned value in the register logically anded with a second specified  
6     value does not equal zero;  
7             verifying that a value the processing instruction returns is greater than or equal to a  
8     third specified value;  
9             scanning the string in reverse order for at least one specified substring;

10       parsing the next digits as a decimal number;  
11       determining a multiplier value according to the specified substring;  
12       multiplying the decimal number by the multiplier value to output a maximum  
13       operating frequency.

1       13.      The machine-readable medium of claim 12, wherein the register is one of a  
2       plurality of general purpose registers.

1       14.      The machine-readable medium of claim 12, wherein the register is the EAX  
2       register.

1       15.      The machine-readable medium of claim 12, wherein the first specified value is  
2       0x80000000, the processing identification instruction is a CPUID instruction, and the third  
3       specified value is 80000004.

1       16.      The machine-readable medium of claim 12, wherein the processing instruction is a  
2       processing identification instruction.

1       17.      The machine-readable medium of claim 12, wherein the specified substring is at  
2       least one of “zHM”, “zHG”, and “zHT”

1       18.      A computer comprising:  
2            a processor to execute a processing instruction;  
3            a memory element coupled to the processor;  
4            input and output facilities coupled to the processor;  
5            at least one register located within the processor, said at least one register able to  
6        contain at least one string;  
7            said processor to  
8              execute a processing instruction to interpret a numerical quantity in the at  
9        least one register;  
10             verify at least one processing feature is supported;  
11             scan the at least one string for a multiplier;  
12             scan the at least one string for a frequency; and

13                   use the multiplier and frequency to determine a maximum operating  
14                   frequency.

1   19.   The computer of claim 18, wherein the register is a general purpose register.

1   20.   The computer of claim 18, wherein the processing instruction is a processing  
2                   identification instruction.

1   21.   The computer of claim 18, wherein the at least one string is a brand string.

1   22.   A processor comprising:

2                   a first register;

3                   a second register to store maximum operating frequency information;

4                   at least one execution unit to execute instructions;

5                   said processor to

6                   execute a processing instruction to copy the maximum operating frequency  
7                   information from the second register to the first register;

8                   verify at least one feature relating to the maximum operating frequency  
9                   information is supported;

10                  scan the maximum operating frequency information in the first register for  
11                  a multiplier;

12                  scan the maximum operating frequency information in the first register for  
13                  a frequency;

14                  use the multiplier and frequency to determine a maximum operating  
15                  frequency of the processor.

1   23.   The processor of claim 22, wherein the first register is one of a plurality of general  
2                   purpose registers.

1   24.   The processor of claim 22, wherein the first register is the EAX register.

1   25.   The processor of claim 22, wherein the second register is one of a plurality of  
2                   control registers.

1    26.    The processor of claim 22, wherein the processing instruction is a processing  
2    identification instruction.

1    27.    The processor of claim 22, wherein the maximum operating frequency information  
2    is a brand string.

1    28.    The processor of claim 22, wherein said processor is further able to  
2    measure a current operating frequency of the processor; and  
3    compare the maximum operating frequency to the current operating frequency.

1    29.    The processor of claim 22, wherein the maximum operating frequency information  
2    is stored in the second register at manufacturing time.

1    30.    The processor of claim 22, further comprising system software to store maximum  
2    operating frequency information set at manufacturing time.